Service notes

After a repair the cables must be laid out as originally fitted to save compliance with original approval and to avoid failures or disturbances.
The mains cable prevents interference from the mains supply and is part of the product approval. For replacement the original spare part only must be used.

Note di servizio

Dopo una riparazione i cavi devono essere disposti come posizionati all'origine per mantenere la corrispondenza con le approvazioni originali ed evitare guasti o disturbi.
Il cavo di alimentazione previene interferenze provenienti dalla rete elettrica ed è parte delle approvazioni del prodotto. Per la sostituzione deve essere utilizzato esclusivamente il ricambio originale.

Modifications reserved - Con riserva di modifiche

Spare parts list
Lista parti di ricambio

Chassis Professional 2550

Rev.1.1

Ref./Pos.	Part.No. Codice	Description	Descrizione	Note
CP10	S010010130	Condensator 220 µF 400V	Condensatore 220 µF 400V	
CP31/CL15	S040600500	Condensator 47 µF 250V	Condensatore 470 µF 250V	
CV20/CL21	S040600220	Condensator 22 µF 250V	Condensatore 22 µF 250V	
CG2	S040590100	Condensator 1 µF 250V	Condensatore 1 µF 250V	
CL27/CV19	S040590220	Condensator 2,2 µF 250V	Condensatore 2,2 µF 250V	
CP1	S030244700	Condensator 470 nF 275 VAC	Condensatore 470 nF 275 VAC	
CL6	S010030180	Condensator 12 nF 2000V 2,5%	Condensatore 12 nF 2000V 2,5%	
CL6	S036231300	Condensator 13 nF 2000V 2,5%	Condensatore 13 nF 2000V 2,5%	
CL6	S010030230	Condensator 15 nF 2000V 2,5%	Condensatore 15 nF 2000V 2,5%	
	S011010120	Fusible resistor 47 Ohm	Resistenza sicurezza 47 Ohm	
	S044010100	Fusible resistor 1 Ohm	Resistenza sicurezza 1 Ohm	
	S044011500	Fusible resistor 15 Ohm	Resistenza sicurezza 15 Ohm	
	S047501000	Fusible resistor 1 Ohm SMD	Resistenza sicurezza 1 Ohm SMD	
	S047502200	Fusible resistor 2,2 Ohm SMD	Resistenza sicurezza 2,2 Ohm SMD	
	S047504700	Fusible resistor 4,7 Ohm	Resistenza sicurezza 4,7 Ohm	
	S047510000	Fusible resistor 10 Ohm	Resistenza sicurezza 10 Ohm	
	S048002200	Fusible resistor 2,2 Ohm	Resistenza sicurezza 2,2 Ohm	
	S048033000	Fusible resistor 33 Ohm	Resistenza sicurezza 33 Ohm	
RL10/RL28	S048222000	Fusible resistor 2,2 KOhm	Resistenza sicurezza 2,2 KOhm	
RP42	S011030020	Resistor 100 KOhm 3W	Resistenza 100 KOhm 3W	
RP41	S011010150	Resistor 1,3 KOhm 1%	Resistenza 1,3 KOhm 1%	
RP43	S011010160	Resistor 732 Ohm 1%	Resistenza 732 Ohm 1%	
RP21/RP44	S011010180	Resistor 240 Ohm 1%	Resistenza 240 Ohm 1%	
RP8	S011010200	Resistor 33 KOhm 1%	Resistenza 33 KOhm 1%	
RF4/RF12	S011010240	Resistor 2,2 Kohm 1%	Resistenza 2,2 Kohm 1%	
RP14/RP19 RP45	S011010250	Resistor R51 Ohm 1W	Resistenza R51 Ohm 1W	
RP1	S053051000	Resistor 1 MOhm VR37	Resistenza 1 MOhm VR37	
RP38	S053054700	Resistor 4,7 MOhm VR37	Resistenza 4,7 MOhm VR37	
NTC1	S056590200	NTC resistor 4,7 Ohm	Resistenza NTC 4,7 Ohm	
PTC1	S056591900	PTC resistor 18 A	Resistenza PTC 18 A	
FP2	S070506500	Fusible 3,15A H	Fusibile 3,15A H	

FP3/FP5	S070503900	Mini fuse T2,5 A	Mini fuse T2,5 A	
FP1	S070503940	Mini fuse T4 A	Mini fuse T4 A	
DL4	S021020150	Diode DMV1500H	Diodo DMV1500H	
DP10	S021020160	Diode ER 506	Diodo ER 506	
DP14/DP15 DP17/DL9	S061303800	Diode BYV 98/200	Diodo BYV 98/200	
DP16	S021020060	Diode BYV 27/600	Diodo BYV 27/600	
DP7	S021020100	Diode BYW 54	Diodo BYW 54	
DL14	S061301360	Diode BYW 36	Diodo BYW 36	
	S021020170	Diode BYD 37D	Diodo BYD 37D	
	S061401370	Diode BYD 37K	Diodo BYD 37K	
	S061503750	Diode BYD 37J	Diodo BYD 37J	
DC1/DC2	S061517920	Diode BA792	Diodo BA792	
	S061112050	Diode BAS 32 L	Diodo BAS 32 L	
	S061002100	Diode BAV 21	Diodo BAV 21	
	S061281050	Diode BAV 203	Diodo BAV 203	
ZL1	S021020120	Diode BZD27/C51	Diodo BZD27/C51	
DL15	S021020130	Diode PRLL5818	Diodo PRLL5818	
	S061014140	Diode 1N 4148	Diodo 1N 4148	
DF1	S061111320	Diode 1N 4007	Diodo 1N 4007	
	S021020000	Diode BAS85	Diodo BAS85	
DP19	S021020090	Diode TL431CZT	Diode TL431CZT	
DP1	S021020210	Bridge rectifiers GBL08	Ponte a diodi GBL08	
DH1	S062000400	Led diode red/green	Diodo led rosso/verde	
DP12	S021020080	Tyristor BT149G	Tyristor BT149G	
	S061515500	Zener diode 3V6	Diodo zener 3V6	
	S061705100	Zener diode 5V1	Diodo zener 5V1	
	S061706800	Zener diode 6V8	Diodo zener 6V8	
	S061713300	Zener diode 33V	Diodo zener 33V	
ZF1/ZF2	S061909350	Zener diode BZT03-C51	Diodo zener BZT03-C51	
ZC3	S021020070	Zener diode 2V4	Diodo Zener 2V4	
ZP2	S021020140	Zener diode 15V	Diodo zener 15V	
TP1	S021010030	Transistor STW7NA80	Transistor STW7NA80	
TL2	S062756100	Transistor S 2000AF	Transistor S 2000AF	
TL5	S021010060	Transistor BC807-40	Transistor BC807-40	
TL1	S021010070	Transistor VN0610L	Transistor VN0610L	
TV4	S062607200	Transistor BF 720	Transistor BF 720	
ICS2/ICS4	S020030030	I.C. TDA7266	I.C. TDA7266	
ICF1	S020030040	I.C. TDA8358J	I.C. TDA8358J	
ICP1	S020030050	I.C. TEA1504	I.C. TEA1504	

ICC2	S020030080	I.C. TDA 9363PS/N1 (SEI 2500 1.0)	I.C. TDA 9363PS/N1 (SEI 2500 1.0)	
ICC2	S020030250	I.C. TDA 9363PS/N2 (SEI 2550 2.0)	I.C. TDA 9363PS/N2 (SEI 2550 2.0)	
ICP2/ICP4	S020030130	I.C. LM317P	I.C. LM317P	
ICP5	S020030150	I.C. TCD T1102G	I.C. TCD T1102G	
ICV1	S063161080	I.C. TDA 6108JF	I.C. TDA 6108JF	
ICC1	S020030170	I.C. TDA 9830T/V1	I.C. TDA 9830T/V1	
ICS1	S063198700	I.C. TDA9870A	I.C. TDA9870A	
ICS1	S063198750	I.C. TDA 9875A	I.C. TDA 9875A	
ICP6	S063549310	I.C. L4931-CDT33	I.C. L4931-CDT33	
ICS5	S063570530	I.C. TDA 7053AT	I.C. TDA 7053AT	
ICC3	S020020010	I.C. M24C16-WBN6	I.C. M24C16-WBN6	
ICS3	S020030160	I.C. SAA 7715TH/N104	I.C. SAA 7715TH/N104	
IC7	S030010010	Choke 8,2 µH SMD	Choke 8,2 µH SMD	
FCC1	S067324000	Saw filter L9453M	Filtro SAW L9453M	
FCC2	S067316000	Saw filter G1984M	Filtro SAW G1984M	
FCC2	S033010000	Saw filter J1980M	Filtro SAW J1980M	
FCC2	S033010010	Saw filter K2977M	Filtro SAW K2977M	
FCC2	S033010020	Saw filter K2962M	Filtro SAW K2962M	
FCC3	S030040030	Filter TPT02B	Filtro TPT02B	
FCC3	S030040090	Filter TPT04B	Filtro TPT04B	
TRP1	S032020000	SMPS transformer	Trasformatore alimentazione	
TRP2	S030040140	Choke 42 V	Choke 42 V	
TRP3	S030040080	Mains filter	Filtro rete	
TRL1	S066544000	Line drive transformer	Trasformatore pilota di riga	
TRL2	S031010000	Flyback transformer (Type A)	Trasformatore EAT (Tipo A)	
TRL2	S031010030	Flyback transformer (Type B)	Trasformatore EAT (Tipo B)	
QC1	S034010020	Quarz 12MHz	Quarzo 12MHz	
QS1	S066902450	Quarz 24,576MHz	Quarzo 24,576MHz	
LL6	S030040100	Bridge coil	Bobina ponte	
LG2	S067071000	Choke coil 13,5 mH	Bobina choke 13.5 mH	
LG1	S067081430	Linearity coil (Type A)	Bobina linearità (Tipo A)	
LG1	S067081420	Linearity coil (Type B)	Bobina linearità (Tipo B)	
LP2	S030040110	PFC coil	PFC coil	
	S040010010	Tuner	Tuner	
	S036020010	Switch push	Switch push	
	S071015300	Earphone jack	Presa cuffia	
IRH1	S020030100	IR receiver TSOP1836SS3V	Ricevitore IR TSOP1836SS3V	
	S036020020	Mains switch	Interruttore di rete	

Spare parts list
Lista parti di ricambio

28FDA TV 799SI

Chassis Professional 2550

Ref./pos	Part.No. Codice	Description	Descrizione	
	S000533520	**Main PCB 2550 4:3 cpl.**	**Chassis 2550 4:3 cpl.**	
	S000678520	**RGB PCB cpl.**	**Modulo RGB cpl.**	
	S070050840	Push buttons	Tasti push	
	S070050670	Mains switch button	Tasto interruttore rete	
	S070050120	Optical guide	Guida ottica	
	S092503600	Mains cable	Cavo rete	
	S070110866	Cabinet front	Mobile parte frontale	
	S070050740	Holder chassis	Supporto telaio	
	S070030140	Back cover	Schienale	
	S070050220	Rear pannel	Sfondo	
	S080010500	CRT 28" A66EHJ43X38	Cinescopio 28" A66EHJ43X38	
	S067202110	Degauss coil	Bobina smagnetizzazione	
	S040030040	Remote control	Telecomando	
	S037010040	Speaker 8 Ohm	Altoparlante 8 Ohm	
	S090020940	Gift box	Scatola imballaggio	
	S090010150	Polibag bottom	Polistirolo inferiore	
	S090010160	Polibag top	Polistirolo superiore	

Spare parts list
Lista parti di ricambio

24FPA TV 2451 250/430

Chassis Professional 2550

Ref./pos	Part.No. Codice	Description	Descrizione	
	S000533380	**Main PCB 2550 16:9 cpl.**	**Chassis 2550 16:9 cpl.**	
	S000678520	**RGB PCB cpl.**	**Modulo RGB cpl.**	
	S070050840	Push buttons	Tasti push	
	S070050670	Mains switch button	Tasto interruttore rete	
	S070050120	Optical guide	Guida ottica	
	S092503600	Mains cable	Cavo rete	
	S070111220	Cabinet front	Mobile parte frontale	
	S070050740	Holder chassis	Supporto telaio	
	S070030180	Back cover	Schienale	
	S070050220	Rear pannel	Sfondo	
	S080010480	CRT 24" W56ERF001X11	Cinescopio 24" W56ERF001X11	
	S030050080	Degauss coil	Bobina smagnetizzazione	
	S040030040	Remote control	Telecomando	
	S037010040	Speaker 8 Ohm	Altoparlante 8 Ohm	
	S090021250	Gift box	Scatola imballaggio	
	S090010200	Polibag-A	Polistirolo-A	
	S090010210	Polibag-B	Polistirolo-B	

Spare parts list
Lista parti di ricambio

34FDA TV3880A

Chassis Professional 2550

Ref./pos	Part.No. Codice	Description	Descrizione	
	S000533600	**Main PCB 2550 4:3 cpl**	**Chassis 2550 4:3 cpl**	
	S000678520	**RGB PCB cpl.**	**Modulo RGB cpl.**	
	S000800520	**Manuals control PCB cpl.**	**Comando locale cpl.**	
	S062000400	LED diode red/green eur	Diodo led rosso/verde eur	
	S036020020	Power switch alps	Interruttore rete	
	S071015300	Erphone jack	Presa jack	
	S020030100	IR receiver TSOP1836SS3VBS12	Ricevitore IR TSOP1836SS3VBS12	
	S070140100	Manuals controls holder	Supporto comandi manuali	
	S000848010	Door	Sportello comandi	
	S082811460	Door holder	Cerniera sportello	
	S082900000	Door push push	Fermo push push	
	S083307100	Mains switch button	Tasto interruttore rete	
	S068056300	PUSH EKPT 1105 S	PUSH EKPT 1105 S	
	S092503600	Mains cable	Cavo rete	
	S070110980	Cabinet front	Mobile parte frontale	
	S070050750	Holder chassis	Supporto telaio	
	S070030100	Back cover	Schienale	
	S070050770	Rear pannel	Sfondo	
	S080010530	CRT 34" A80AEJ10X01	Cinescopio 34" A80AEJ10X01	
	S030050000	Degauss coil	Bobina smagnetizzazione	
	S040030040	Remote control	Telecomando	
	S037010040	Speaker 8 Ohm	Altoparlante 8 Ohm	
	S090021000	Gift box	Scatola imballaggio	
	S090010030	Polibag bottom	Polistirolo inferiore	
	S090010040	Polibag top	Polistirolo superiore	

Chassis Professional 2550 service procedure

Power supply

Using PP2, set the value of +VB at the terminals of CP31 (the values for different types of CRT are indicated in the table on the circuit diagram).

Activation of service mode

1. Power up the appliance by pressing the on-off switch simultaneously pressing and holding the **MENU** button of the **cabinet controls** until the green Led lights up.

2. Release the MENU button at the cabinet and press the **stand-by** button on the remote control; the appliance will default to programme 1, or to position AV1 if pin 8 of the SCART 1 socket is connect to a +12 V supply.
Important: make certain that the test signal needed for adjustment purposes is available either on programme 1 or on the SCART 1 input, as any further selection of sources is not possible when in service mode.

3. The functions accessible in service mode are listed below; they are selected with the **P+** and **P–** buttons of the remote control then adjusted with the **Volume ±** buttons.
It is advisable to note down the initial value of each parameter before making any adjustment, so that it can be restored easily if necessary.

In the event of the NVM memories being replaced, it will be necessary to carry out all of the envisaged service mode adjustments, as the replacement memory is supplied NOT pre-programmed and a new initialization is therefore indispensable.
WARNING. If a new NVM is installed, service mode will not allow the various parameters to be accessed until the initialization procedure has been completed.
WARNING. Tuning is not possible before initialization.

Option byte (Op)

The correct value for the individual appliance is indicated on the label affixed to the rear of the cabinet alongside the words **Option byte**.

Initialization (INIT)

The initialization procedure, which also indicates the µP software version, is activated by pressing the Volume + button and **must be run every time the NVM or the µP is replaced. Remember that this operation erases all memorized data**.

Screen grid voltage (Vg2 align)

Having selected the function, press the Volume + button; a luminous horizontal line will appear in the middle of the screen. Set potentiometer G2 of the EHT transformer so that the line is just visible (in a dimly lit room). Now press the Volume – button and **wait a few seconds** for service mode to be restored.

AGC tuner (AG)

Applying a signal of 1mV to the aerial input on a UHF channel, adjust so as to give 4 V_{DC} at pin 1 of the tuner.

OSD horizontal position (Hor-pos)

Adjust the position of the On Screen Display as desired.

Use of UHF band only (UHF only)

Select UHF only (on) to speed up the channels auto search in areas where there are no VHF transmitters (e.g. United Kingdom).

Automatic tuning (Stepdelays / Stepsizes)

In the event that difficulty is experienced with the automatic tuning procedure when searching for critical channels, adjust to reduce the scan speed (Stepdelay) and the size of the step (Stepsizes). Normal values are 0 (zero).

Black level (BLR/BLG)

This varies the intensity of black in the picture. Adoption of the fixed value 32 is recommended.

White adjustment (WB/WG/WR)

Using a B&W bar signal, adjust to obtain a grey image.

Horizontal geometry (HSH/EW/PW/CPU/CPL/TC/HPA/HBO)

The single parameters are as follows:

PW-COR	PW fine adj. for 4/3 (if 16/9 CRT only)
EW-COR	EW fine adj. for 4/3 (if 16/9 CRT only)
HBO	Horizontal bow
HPA	Horizontal parallelogram
TC	Trapeze correction
CPL	Corner parabola low
CPU	Corner parabola up
PW	Parabola correction
EW	Horizontal Amplitude
HSH	Horizontal Shift

Vertical geometry (VS/VA/VSH/SC)

The vertical geometry is adjusted starting from the **VS** function (Vertical Slope), making the adjustment so that the middle horizontal line of the test signal is exactly at the meeting of the picture and the black bottom margin, and **must not be altered again thereafter (when settings are significantly out of adjustment, the caption VS may not appear because the bottom part of the picture is missing).**

The single parameters are as follows:

VA	Vertical amplitude
VSH	Vertical shift
VS	Vertical slope
SC	Vertical S-correction (linearity)

Deactivating service mode

Once all the necessary adjustments have been made, press the **TV** button on the remote control. This will have the effect of storing all the functions with the new settings and returning the appliance to normal operation.

Chassis Professional 2550
Circuit description

Power supply

This comprises an SMPS unit (**S**witch **M**ode **P**ower **S**upply) operating at approx. 50 KHz, with control and stabilisation on the secondary side, managed by integrated circuit TEA1504 (ICP1).
The transformer TRP1 simultaneously performs the function of mains voltage isolation and generation of the relative power supply voltages on the various secondary windings.
When the switch is turned on the mains voltage, rectified and smoothed, present at the ends of CP10 is connected to pin 1 of integrated circuit ICP1 which, by means of an internal current source, charges capacitor CP14. As soon as the voltage reaches a value of approx. 11 V, the integrated circuit starts operation and generates the pulses on pin 4 to drive transistor TP1.
In this way current starts to flow through primary winding 6/2 of the transformer and pulses are formed at the ends of winding 3/4 which, rectified by DP9 and smoothed by CP16, ensure complete power supply to ICP1.
At the same time the secondary windings also receive current which when rectified and smoothed generate the various power supply voltages.
A voltage is taken from ends of CP31 via a divider formed by RP31/RP32/RP35/PP2, which when applied to the control electrode of DP19, runs a proportional current through the photodiode housed in optocoupler ICP5.
This value, via the optocoupler emitter, is transferred to the input (pin 9 of ICP1) of a comparator which regulates the duration of the base drive pulses of transistor TP1.
This achieves highly accurate regulation of voltages available on the transformer secondary windings, controlling the time during which current flows through the primary winding and therefore ensuring a precise final value, regulating the power input to the transformer.
Inductance LP2 limits the level of current harmonics to the mains, in accordance with current standards.

- **Stand-by mode**

During operation in stand-by mode the appliance consumption levels are very low as most of the circuit sections are not active. Therefore the quantity of power delivered to the transformer is considerably small, requiring such short intervals of TP1 conduction that it is no longer compatible with the characteristics of the transistor.
Therefore in these conditions a discontinuous operation mode is implemented, in which the integrated circuit ICP1 generates the drive pulses of transistor TP1 not in continuous mode but for brief intervals only, combined with periods of inactivity (BURST mode). In this way the energy transferred remains low while acceptable conduction times for the transistor TP1 are maintained.
In stand-by mode the transistor TP3 conducts and TP2 is inhibited, therefore thyristor DP12 conducts by receiving the pulses of secondary winding 16/17-18 of the transformer on the gate electrode, via RP24 and CP25. Therefore the winding of +VB voltage is connected in parallel to that of standby voltage +3V3 (pin15/14).
Voltage at the ends of CP40 rapidly increases and, when it exceeds the threshold value of diode Zener ZP2, it sets transistor TP4 to conduction mode. This generates a current pulse in the photodiode of ICP5 which is transferred, via DP8 and RP6, to pin 14 of ICP1 which interrupts drive of transistor TP1.
The voltage on pin 6 of ICP1 decreases and on reaching the value of approx. 8 V , the internal current generator is reactivated. The voltage on pin 6 starts to increase and when the value of approx. 11 V is reached, transistor TP1 is driven once more and the cycle described is repeated continuously.
In these conditions, to avoid wasteful consumption, only the circuits connected to voltage + 3,3V are powered, as regulators ICP2 (+ 8V) and ICP4 (+5V) are kept inactive enabling conduction of transistors TP6 and TP7.
This solution achieves consumption levels stand-by mode of only approx. 2.5 W (Green Mode).

- **Normal mode**

When an ON command is received, pin 1 of ICC2 is brought to level L..
Transistor TP2 saturates and interrupts conduction of DP12 thus restoring separation of the secondary windings. At the same time TP6 is inhibited, activating the +8V power supply. In this way the horizontal deflection stage can start running to generate the voltage +55V which, through TP9 and TP7, enables activation also of the +5V power supply via ICP4. Now all secondary voltages are present and the power supply unit operates in normal mode.
If the required power falls below 10% of the peak value, the operating frequency falls to approx. 20kHz to reduce switching losses.

- **Protections**

In the event of an overvoltage on the mains power supply, ICP1 interrupts generation of the drive pulses on pin 4 if the voltage on pin 6 exceeds approx. 14V. On the contrary, in the event of excessively low mains power supply, the drive pulses are interrupted if voltage on pin 14 falls below 2.5V.
Also the current flowing in transistor TP1 is measured at the ends of RP14/RP19/RP45 and applied on pin 5 via RP15; if this value exceeds the maximum setting, drive pulses on pin 14 are shut off.
In this way protection is ensured of transistor TP1 and also against short circuits on the transformer secondary windings.

- **PTC control**

The circuit formed by TP5, ICP3 and DP2 (optional) enables activation of demagnetisation of the picture tube, each time the appliance is switched on, not only via the mains switch but also from stand-by mode.

µProcessor / Video / Synchro / Text

All the above functions are performed by the integrated circuit ICC2 (TDA9363).

- **µProcessor**

This manages all appliance functions communicating internally with the video/synchro section and externally with the various peripherals via two IIC bus lines and the L/H level of some pins.
The bus connected to pins 62 and 63 is used exclusively for communication with the NVM memory (ICC3) to ensure optimal data protection.
The bus connected to pins 2 and 3 is used for communication with all other peripherals.
IR receiver (IRH1) is connected to pin 64 and pin 7 is used both as the manual control keyboard input and output for the control of the LED (DH1) via transistors TH1 and TH2.
Pin 60 is used for reset on appliance switch-on, performed by transistors TC7 and TC8, while TC5 shuts off power supply to the NVM memory during the turn-on transition to avoid data corruption.
Pins 6 and 8 are inputs used for automatic selection of the AV mode if the sources connected to the two SCART sockets supply the relative switching voltage.
Pin 10 controls selection of the video input from SCART1 and 2 (see below) and pin 11 activates the audio MUTE.
Pin 1 enables the power supply for the output from stand-by mode (active L) and pin 5 regulates the earphone volume.
Pin 4 is used only on versions with Dolby Surround Pro Logic.

- **Video**

The IF signal from the tuner with bandwidth controlled by the surface wave filter FCC2, is applied on pins 23/24, connected to the input of the video demodulator (synchronous PLL with active carrier regeneration) which enables ultra-linear demodulation, optimal demodulation figure, reduced harmonics and excellent pulse response.
The only residual regulation of the video demodulation circuits is the regulation of the working point of the tuner AGC, controlled via pin 27.
The base-band video signal is available with an amplitude of 2 Vpp on pin 38 and, via the suppression filter of audio carriers FCC3, is applied on pin 12 (which represents the input of the signal from RF) and on the video output pin 19 of the SCART 1 socket.
Transistors TC3, TC4 and TW1 adapt impedance.
An additional video input is available on pin 42 and is used as input of the signals delivered from SCART sockets 1 and 2.
Selection between the two sockets is via transistors TW3, TW4, TW5, TW6, TW7 and TW8 controlled by pin 10 of the processor. The SCART 2 socket can also be used as SVHS input, with the relative chrominance signal connected to pin 43.
The signal for the screen is transferred internally through a band pass filter for the extraction of the chrominance signal and via a trap to eliminate the colour sub-carrier from the luminance signal.
These circuits are bypassed in the case of SVHS sources.
There are also switched capacitor circuits for the implementation of the luminance delay lines.
The chrominance signal is then demodulated in accordance with standards PAL/SECAM/NTSC identified automatically and with the aid of integrated delay lines.
All oscillators for the reconstruction of the various carriers use quartz QC1 connected to pins 58 and 59.
Exclusively original parts must be used for this component as all functions of the integrated circuit use this frequency as a reference.
The RGB signals are restored via the matrix circuits, and are controlled for saturation, contrast and brightness levels.
The drive signals for the video final amplifiers are then available on output pins 51, 52 and 53.

Pin 50 is the input of the measurement pulses for cut-off regulation, which uses an automatic system for alignment both at low and high currents, optimising picture tube performance.
Pin 49 is the input for control of automatic limitation of the picture tube current.

- **Synchro**

The horizontal and vertical synchro signals are extracted from the video signal for the screen.
Also all management of the deflection controls are via quartz QC1.
On power-up, the horizontal drive pulses to pin 33 pass progressively from a minimum initial duration to a nominal value reducing the stresses of line output transistor to a minimum to guarantee optimal reliability.
Pin 34 is the input of the horizontal flyback pulse and pin 36 is the input for dimensional stabilisation of the image according to variations in picture current.
Pin 49 is used both as an input to limit picture current and to protect the latter by blanking in the event of faults on the vertical deflection circuits.
Pins 21 and 22 are the symmetrical outputs for vertical drive and pin 20 is the output for control of E/W correction.
All adjustments are performed in service mode via the specific support software.

- **Text / OSD**

All hardware and software functions are housed in the integrated circuit which also activates the relative RGB signals.

Audio signal processing

The various audio functions are handled by circuits TDA9870/5A (ICS1), SAA7710T (ICS3), TDA7266 (ICS2/ICS4), TDA7053AT (ICS5), TDA9830 (ICC1).

- **TDA 9870A / TDA 9875A**

The basic functions of the two integrated circuits are the same, while version TDA9875A has an additional complete decoder for NICAM digital audio.
The IF audio signal from the TC3 emitter is applied on the input pin 12.
All audio functions (demodulation, FM/NICAM stereo decoder, input/output switching, volume/tone adjustment, effects) for the standard BG/DK/I/LL' are housed in the integrated circuit and are selected and controlled completely via software.
The audio inputs from the sockets SCART 1 and SCART 2 are connected respectively to pins 33/34 and 36/37 while the audio input from the DVB receiver (optional) is connected to pins 31/32.
Pins 47/48 and 51/52 are the outputs respectively to SCART 1 and SCART 2 sockets.
Pins 62/63 are the constant level outputs for the LINE OUT sockets (optional), powered via transistors TW11 and TW13, while pins 60/61 are the outputs for the loudspeaker power amplifiers (ICS2).
Pins 57/58 are the outputs of the central and rear channels (used on Dolby appliances only) for the relative power amplifiers (ICS4).
Pins 22/23/25/26/27 are the inputs/outputs of digital bus I2S used for communication with ICS3 (present only on Dolby Pro Logic appliances).

- **SAA 7710T**

This is only present on appliances with Dolby Pro Logic decoders.
Signal handling is completely digital and data transfer to and from ICS1 is via bus I2S linked to pins 22/23/24/28/29.
A specific software manages all functions.

- **TDA 7266**

This is a double audio amplifier with bridge outputs for direct connection with the loudspeakers.
ICS2 is still present while ICS4 is used only on Dolby Pro Logic appliances to amplify the central and rear channels.
The input signals are connected to pins 4/12 and outputs to pins 1/2 and 14/15.
Pin 6 (L active) silences the amplifiers and is controlled via transistor TS1.
Transistors TS2, TS3 and TS4 activate the MUTE function during power supply power supply transients.
Pin 7 (L active) reduces power consumption to minimum values in stand-by mode.

- **TDA 7053AT**

This is a double amplifier used to power the earphone socket.
The inputs are connected to pins 4/6 and outputs to pins 9/16. The signal reproduced is the same as the loudspeakers and the relative volume can be controlled via pins 2/8 connected to the output (pin 5) of the ICC2 μ–controller section.

- **TDA 9830**

This is only present on appliances designed to French standards LL' to demodulate the AM audio signal.

Transistors TC1 and TC2 switch the input of the FCC1 filter as foreseen by the standards and the demodulated audio signal (mono) is available on pin 8.
Transistor TC9 activates the MUTE function.

Deflections

- **Horizontal**

To drive the line output transistor, transformer TRL1 is used, in which the primary winding is drived by transistor TL1, connected to the horizontal drive output of ICC1 via emitter follower TL6.
The horizontal deflection stage is performed in the conventional way with deflection transistor TL2, diode EW modulation circuit (DL4) and internal pin-cushion distortion correction (CL8/LL6). The EW correction signal is injected in the central point of the diodes via LG2.
The capacitive divider formed by CL11/CL12 is used to pick up the horizontal flyback pulse to apply on pin 34 of ICC2 limiting the maximum value to 8V via diode DL11.

- **Vertical – EW correction**

The functions are performed by integrated circuit TDA8358 (ICF1). This is a power amplifier with a bridge output to enable direct connection of the vertical deflection coils to pins 4 and 10. Resistances RF9/RF10 are set in series to supply pin 12 with the required feedback signal.
The differential input circuit (pin 1/2) is driven by the voltage generated at the ends of RF4/RF12 for the symmetrical drive currents supplied by ICC2.
Pin 11 is an output that passes to H level in correspondence of the vertical flyback. This signal is connected to pin 49 of ICC2 and is used to protect the picture tube in the event of faults on the vertical deflection circuit.
Two separate power supply voltages are used for the deflection section (pin 3) and the flyback pulse generation (pin 9) to obtain a high efficiency level.
The power stage for EW correction, comprising a MOS transistor inside the integrated circuit, is driven directly by ICC2 pin 5 and its collector (pin 8) is connected via RG4 to injection coil LG2.

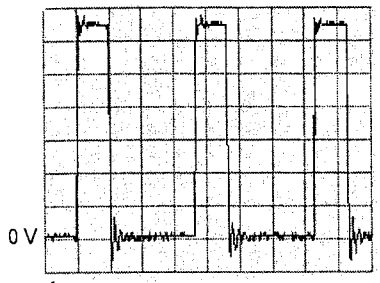
Video output amplifiers

The RGB signals available on pins 51/52/53 of ICC2 (TDA9363) must be amplified and inverted to bring them to the level required to drive the picture tube.
The signals are sent at low impedance via transistors TC10, TC11, TC12 to the inputs of the output amplifiers.
For this purpose integrated circuit TDA6108 (ICV1) is used.
The inputs are connected to pins 1/2/3 and outputs (pin 7/8/19) are connected directly to the cathodes of the picture tube via protection resistors RV5/RV7/RV10.
Pin 5 provides the copy of currents flowing in the picture tube cathodes and this information is sent to the video processor TDA9363 for operation of the automatic cut-off control circuits.

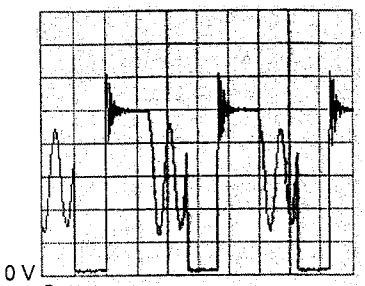
Transistors TV1 and TV4 create a circuit for the picture tube spot elimination when the appliance is switched off.
During operation the heater supply pulses, rectified and filtered by DV6 and CV6, maintain TV1 in saturation and therefore TV4 is inhibited.
Via RV19 and DV10 capacitor CV19 can thus charge to voltage +200V, while grids 1 (G1) of the picture tube remain at earth potential as DV10 is conducting.
As soon as the appliance is switched off, the line output stage stops supplying the heater pulses; TV1 is inhibited and TV4 is saturated by the +200V voltage still present and applied via RV18 to its base.
The collector of TV4 now refers the positive side of CV19 to ground, and grids 1 of the picture tube are polarised with the negative voltage of 200V present on the negative side, as diode DV10 is now inversely polarised.
In this way the picture tube is totally inhibited for the time taken by CV19 to discharge and the formation of the spot on shutoff is inhibited.

There is also a circuit (optional) for deflection speed modulation.
The RGB signals, decoupled via transistors TV7/TV8/TV9 are added and transferred via the circuit formed by TV2 and TV3 to the power stage formed by TV5 and TV6.
The coupling capacitor CV13 with the input impedance of the power stage forms a circuit which generates pulses of suitable polarity according to each transition front of the signal.
In this way a specific deflection coil is driven in the picture tube, which modulates the deflection speed (**B**eam **V**elocity **M**odulation) to achieve a significant improvement in image definition.

Oscillograms Chassis Board (2550) (continue)



1 2 V/Div 5 µs/Div



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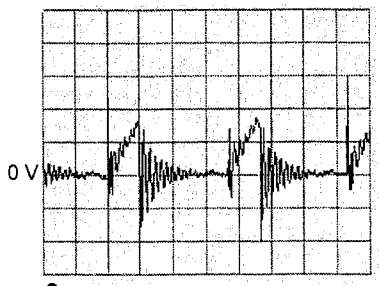
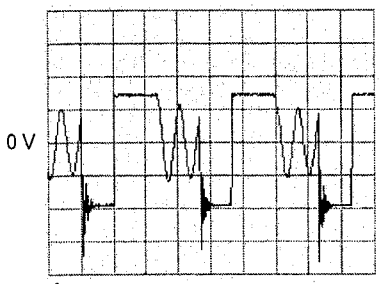
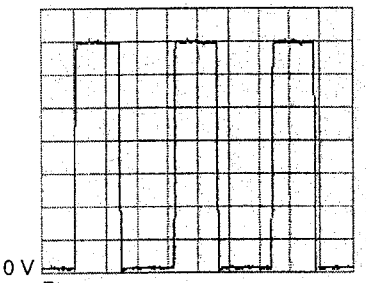


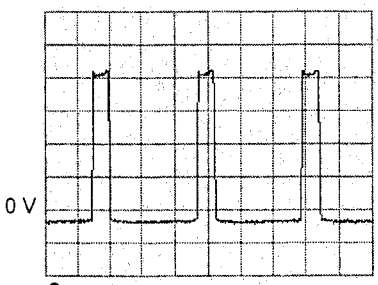
3 200 mV/Div 5 µs/Div



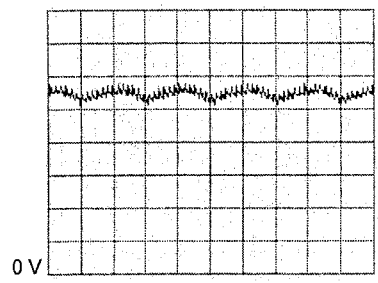
4 100 V/Div 5 µs/Div



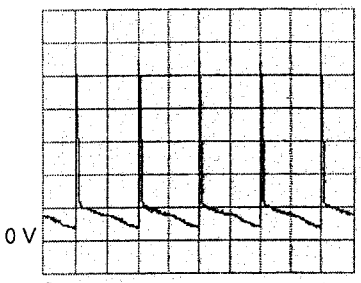
5 1 V/Div 20 µs/Div



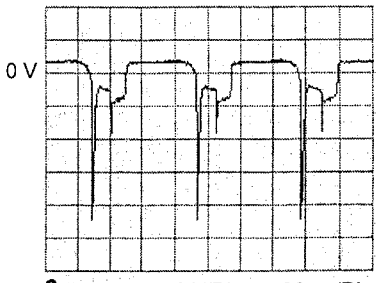
6 2 V/Div 20 µs/Div



7 500 mV/Div 10 ms/Div



8 10 V/Div 10 ms/Div



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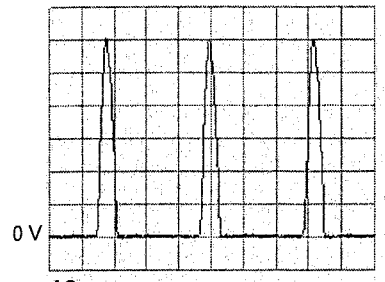

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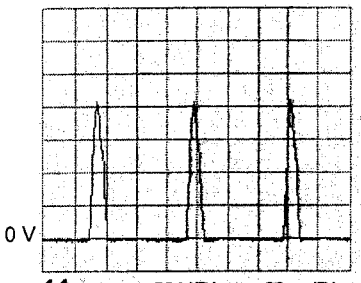

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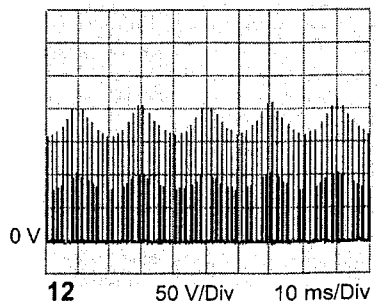

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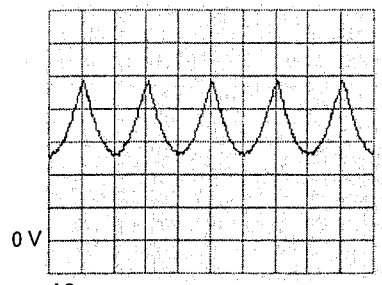

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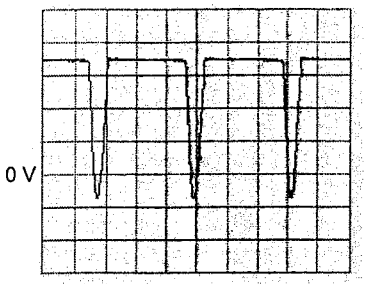
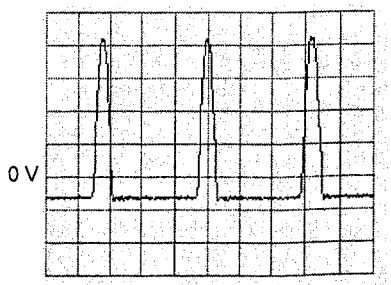
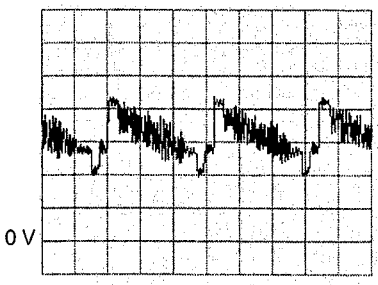


14 50 V/Div 20 µs/Div

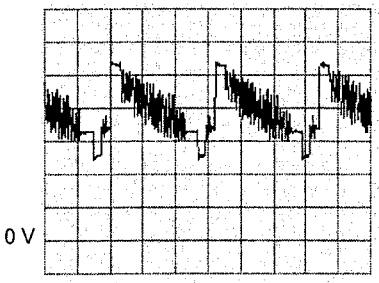


15 5 V/Div 20 µs/Div

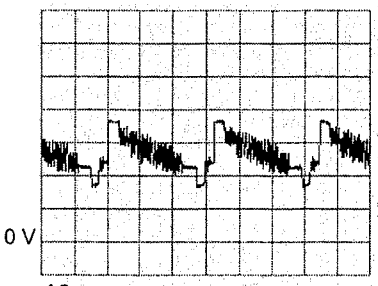
Oscillograms Chassis Board (2550)



16 1 V/Div 20 µs/Div



17 500 mV/Div 20 µs/Div



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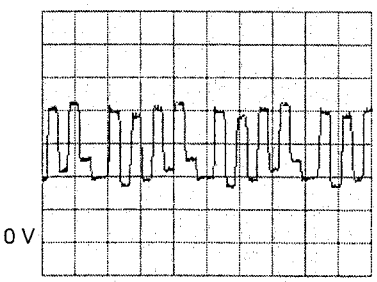

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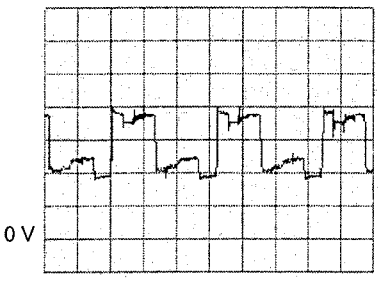
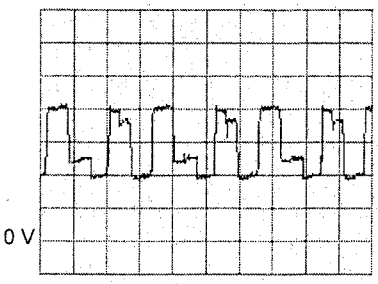
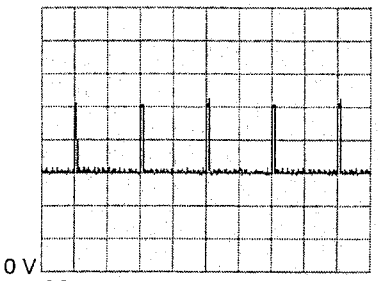


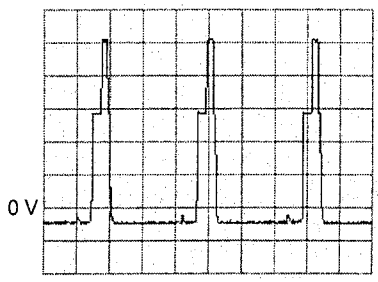
20 1 V/Div 20 µs/Div



21 1 V/Div 20 µs/Div



22 1 V/Div 10 ms/Div



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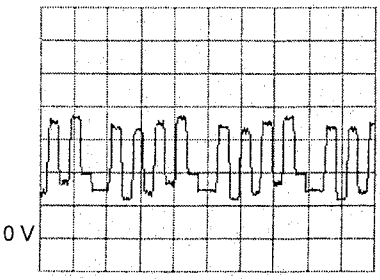

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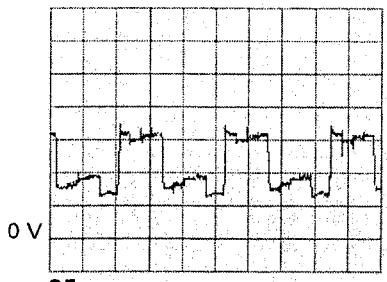

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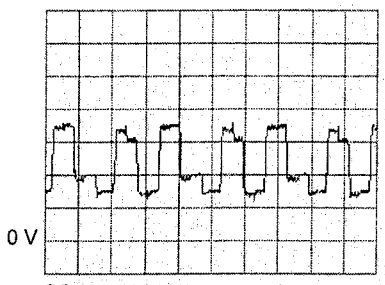

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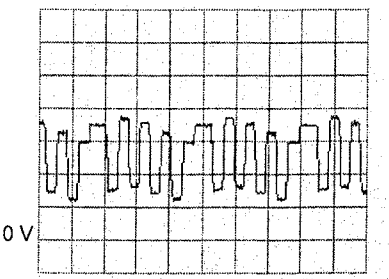

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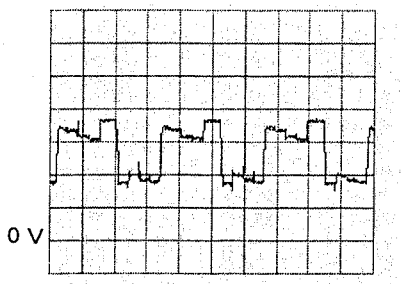

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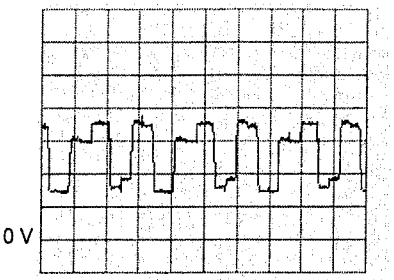

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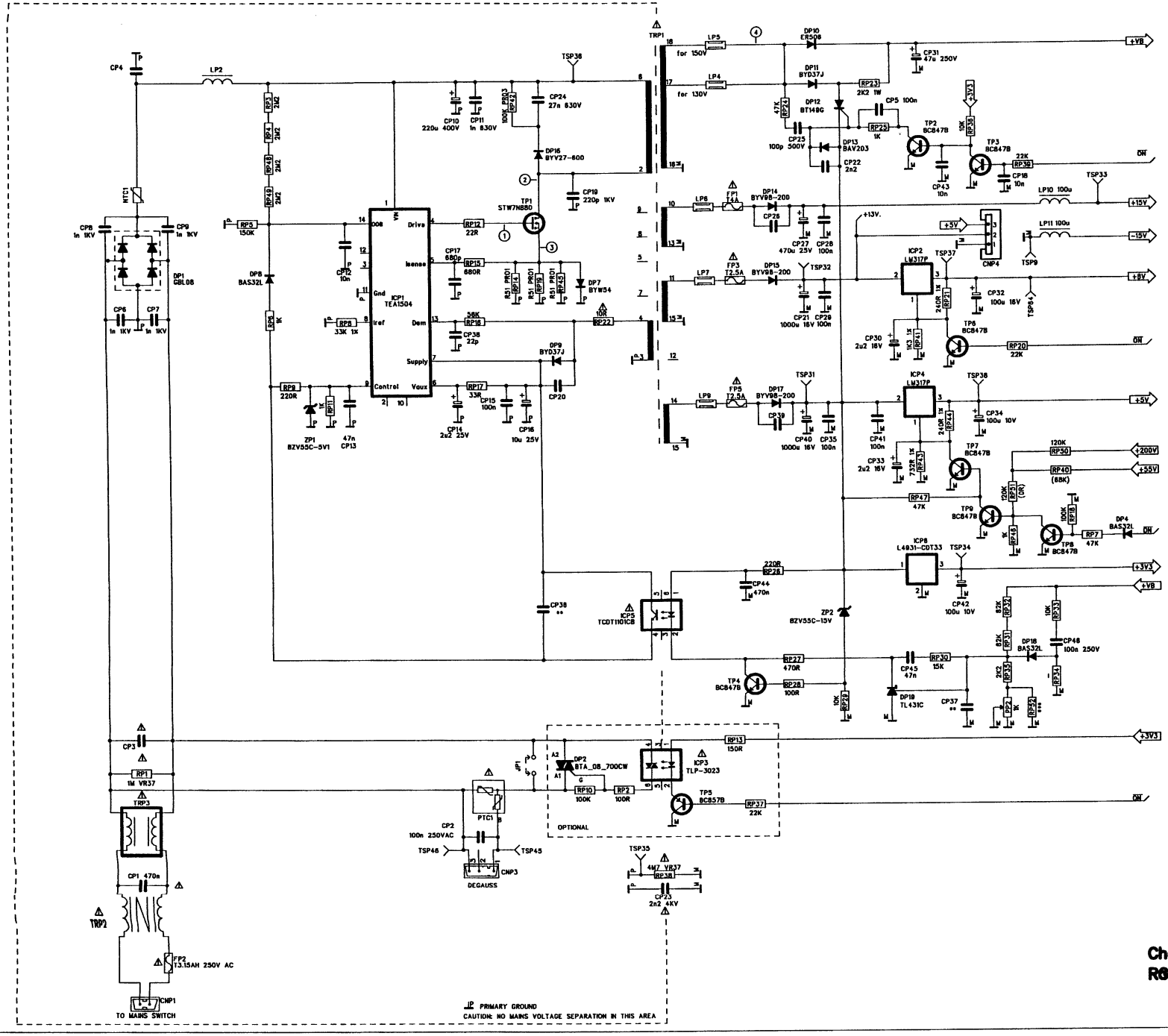
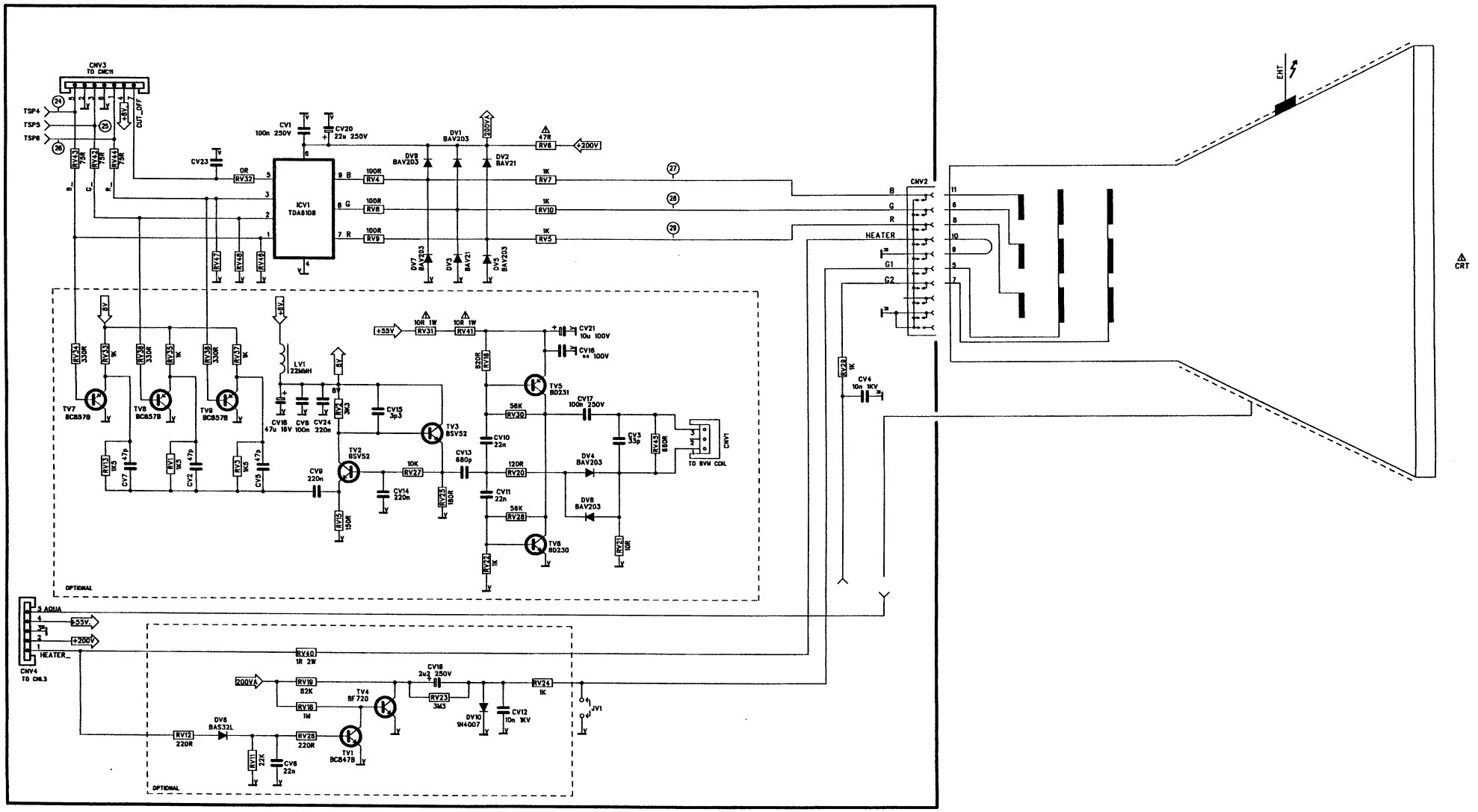


Chassis Professional 2550
R6Ber Supply **Rev 1.1**
Pg.5/6

S091020020



Chassis Professional 2550
RGB **Rev 1.1**
Pg.6/6

S091020020

TO AUDIO SIGNAL

SC1

SC2

CNW1

CNW2

CNS1

CNS6 LINE OUT

OPTIONAL

ICS2 TDA7266

ICS5 TDA7053AT

Chassis Professional 2550
Audio Power Rev 1.1
Pg.1/6

S091020020

TO AUDIO POWER/CONNECTORS

TO FRONT END

ICS3
SAA7715H

ICS1
TDA9870A V2
TDA9875A V2 (NICAM)

QS1
24.576MHz

ICS4
L4931-CDT33

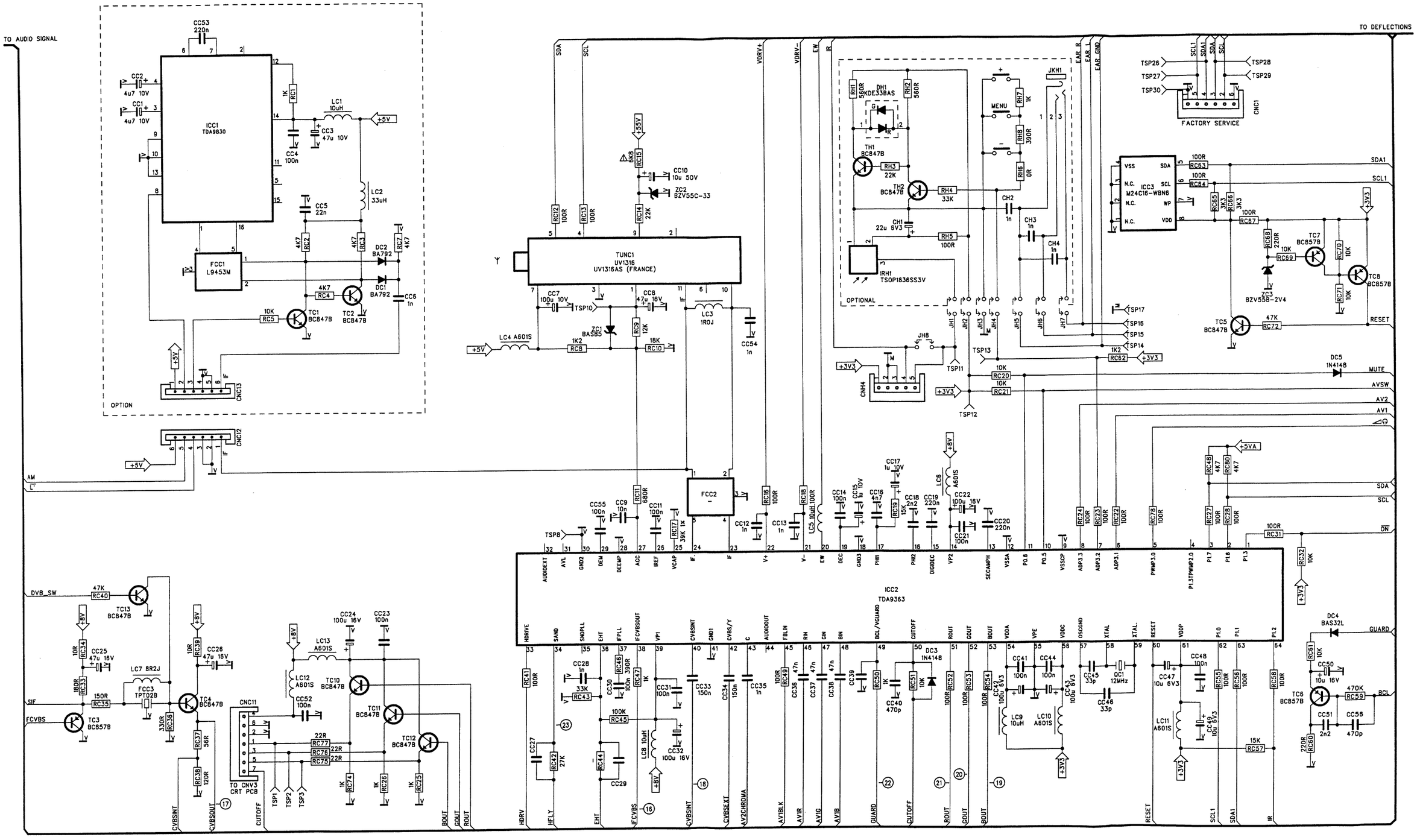
TS5
BC847B

TS6
BC807-40

TSP7

Chassis Professional 2550
Audio Signal Rev 1.1
Pg.2/6

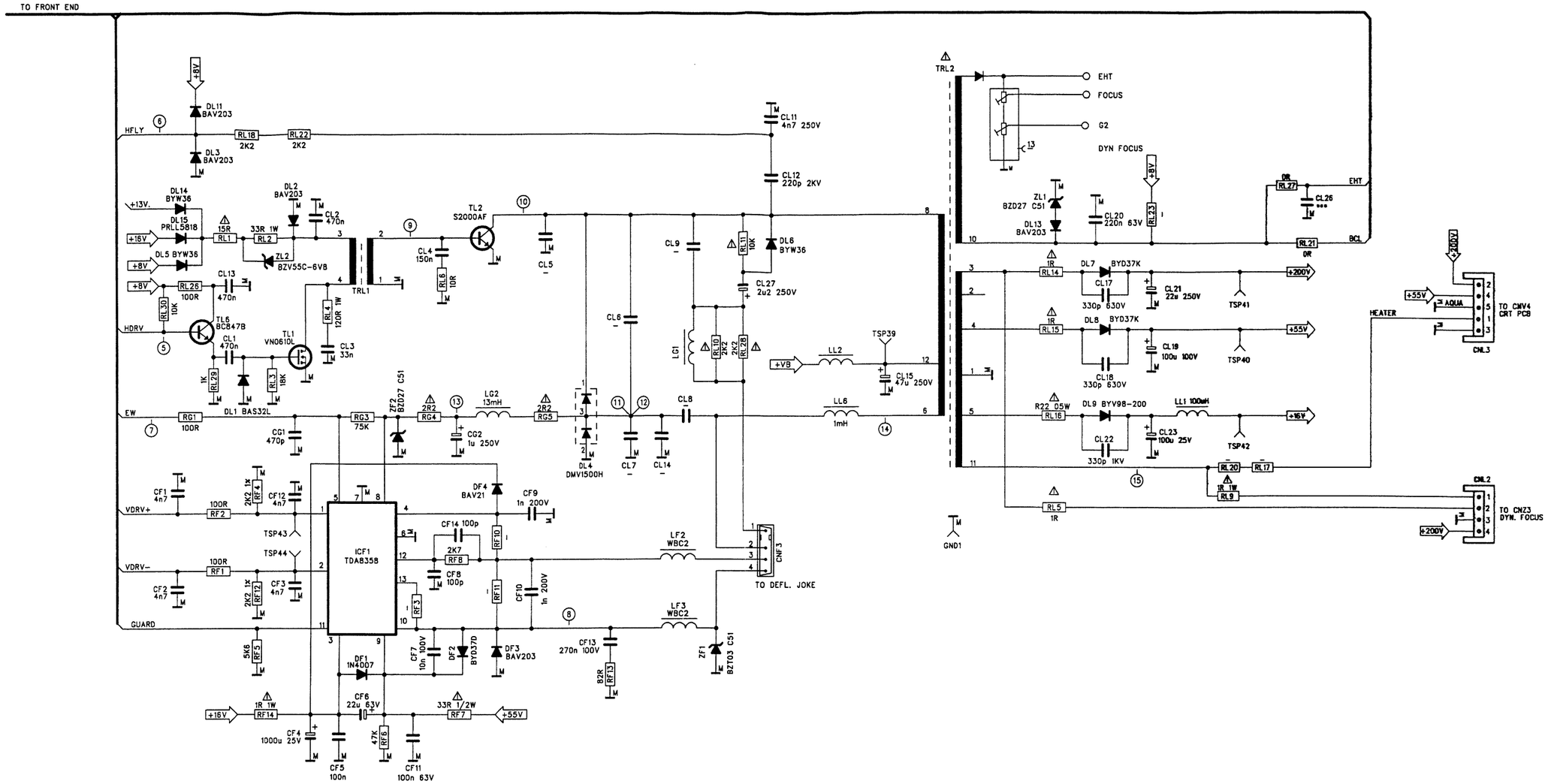
S091020020



	FCC2	FCC3
BG	G1984M	TPT02B
I	J1980M	TPT04B
BG/DK	K2977M	TPT02B
BG/LL'	K2962M	TPT02B

Chassis Professional 2550
Front End **Rev 1.1**
Pg.3/6

SO91020020



	+VB	RC44	RF3	RF10	RF11	LG1	RG3	CL5	CL6	CL7	CL8	CL9	CL14	RL17	RL20	RL23	TRL2	LP4	LP5	RP32	RP34
A59EEQ15X97 (25" 4/3)	150V	680K	390K	1R0 2W	330R 2W	TYPE A	75K	/	12nF 2000V 2,5%	33nF 630V	470nF 400V	560nF 250V	/	R51 2W	R51 2W	4K7	TYPE A	/	YES	82K	10K
A59EHJ13X38 (25" 4/3)	150V	680K	390K	1R15 2W	330R 2W	TYPE A	75K	/	12nF 2000V 2,5%	33nF 630V	470nF 400V	680nF 250V	/	R39 2W	R39 2W	4K7	TYPE A	/	YES	82K	10K
A66EAK071X11 (28" 4/3)	150V	680K	390K	R82 2W	330R 2W	TYPE A	75K	/	12nF 2000V 2,5%	33nF 630V	470nF 400V	560nF 250V	/	1R2 2W	1R2 2W	4K7	TYPE A	/	YES	82K	10K
A66EHJ43X38 (28" 4/3)	150V	680K	390K	1R15 2W	330R 2W	TYPE A	75K	/	12nF 2000V 2,5%	33nF 630V	470nF 400V	680nF 250V	/	R39 2W	R39 2W	4K7	TYPE A	/	YES	82K	10K
A66QEW13X46 (28" 4/3)	150V	680K	390K	1R0 2W	220R 2W	TYPE A	75K	/	12nF 2000V 2,5%	33nF 630V	470nF 400V	680nF 250V	/	R51 2W	R51 2W	3K9	TYPE A	/	YES	82K	10K
A68QCP893X230 (29" 4/3 RF)	130V	820K	390K	1R15 2W	180R 2W	TYPE B	75K	1nF 2000V	15nF 2000V 2,5%	22nF 630V	560nF 400V	680nF 250V	/	1R5 2W	1R5 2W	5K6	TYPE B	YES	/	56K	33K
W66EJU023X015 (28" 16/9)	130V	820K	390K	1R65 2W	330R 2W	TYPE B	68K	1nF 2000V	15nF 2000V 2,5%	22nF 630V	680nF 400V	820nF 250V	/	R62 2W	R62 2W	5K6	TYPE B	YES	/	56K	33K
W76EGV023X015 (32" 16/9)	130V	820K	390K	1R65 2W	330R 2W	TYPE B	68K	1nF 2000V	15nF 2000V 2,5%	22nF 630V	680nF 400V	820nF 250V	/	R62 2W	R62 2W	5K6	TYPE B	YES	/	56K	33K
W76EJY011X101 (32" 16/9)	130V	820K	390K	1R5 2W	330R 2W	TYPE B	68K	1n8 2000V	13nF 2000V 2,5%	22nF 630V	470nF 400V	1uF 250V	/	R62 2W	R62 2W	5K6	TYPE B	YES	/	56K	33K
W66ECK001X13 (28"16/9)	130V	820K	390K	1R5 2W	330R 2W	TYPE B	68K	2n2 2000V	12nF 2000V 2,5%	22nF 630V	560nF 400V	680nF 250V	/	1R5 2W	1R5 2W	5K6	TYPE B	YES	/	56K	33K
W66EJY011X101 (28"16/9)	130V	820K	390K	1R5 2W	220R 2W	TYPE B	68K	1n8 2000V	13nF 2000V 2,5%	22nF 630V	470nF 400V	1uF 250V	/	R62 2W	R62 2W	5K6	TYPE B	YES	/	56K	33K
W66QDE993X084 (28"16/9)	150V	820K	390K	1R5 2W	180R 2W	TYPE A	68K	1n 2000V	10nF 2000V 2,5%	22nF 630V	390nF 400V	470nF 250V	/	1R2 2W	1R2 2W	3K9	TYPE A	/	YES	82K	10K
W66ERF022X013 (28"16/9RF)	130V	820K	390K	1R3 2W	330R 2W	TYPE C	68K	1n5 2000V	12nF 2000V 2,5%	22nF 630V	390nF 400V	820nF 250V	/	1R8 2W	1R8 2W	3K9	TYPE B	YES	/	56K	33K
W76ERF022X013 (32"16/9RF)	130V	820K	390K	1R3 2W	330R 2W	TYPE C	68K	1n5 2000V	12nF 2000V 2,5%	22nF 630V	470nF 400V	680nF 250V	/	1R8 2W	1R8 2W	3K9	TYPE B	YES	/	56K	33K
W56ERF001X11 (24"16/9RF)	130V	820K	390K	1R15 2W	330R 2W	TYPE C	68K	1n8 2000V	13nF 2000V 2,5%	18nF 630V	560nF 400V	680nF 250V	/	1R8 2W	1R8 2W	5K6	TYPE B	YES	/	56K	33K